

ENVIRONMENTAL PROTECTION AGENCY
An Ghníomhaireacht um Chaomhnú Comhshaoil

**Science, Technology, Research & Innovation for the
Environment (STRIVE) Programme 2007 – 2013**

**Technical Description
Call for Research Proposals**

Towards a Cryptosporidium Monitoring Protocol

The STRIVE Programme is funded by the Irish Government under
the National Development Plan 2007-2013



Call for Research Proposals: Towards a *Cryptosporidium* Monitoring Protocol

This document provides the Technical Description for the Call for Research Proposals for work towards developing a *Cryptosporidium* monitoring protocol. Applicants should read the following carefully and also consult the other documentation provided (i.e. *Guide for Applicants, Guide for Grantees, Terms and Conditions for support of grant awards*).

Introduction

The Science, Technology, Research & Innovation for the Environment (STRIVE) Programme has been allocated funding of approximately €100m for the period 2007-2013. The purpose of the STRIVE Programme is to protect and improve the natural environment by addressing key environmental management issues by the provision of world-class scientific knowledge generated through a vibrant, competitive programme of research developed supported and coordinated by the Environmental Protection Agency (EPA).

Cryptosporidium has emerged as a common cause of gastro-enteritis in recent years. *Cryptosporidium* oocysts are hardy and can persist for longer than *E. coli*; they cause infection at low levels (probably <10 viable oocysts); they are present in farm animals; they are resistant to disinfectants such as chlorine; and consequently they pose a threat to groundwater and human health.

One of the key Environment & Health issues addressed by the EPA-STRIVE Programme is the prevalence and persistence of *Cryptosporidium* - particularly with respect to drinking water supplies. Failure by water suppliers to monitor basic parameters such as chlorine (indicator of the effectiveness of disinfection and removal of *E. coli*) and turbidity (indicator of effectiveness of the treatment barrier to *Cryptosporidium*) put populations served by those water supplies at risk.

From an agriculture point of view, health status of Irish livestock is of great importance and as parasites are associated with up to over 50% of animal disease significant resources are directed towards their investigation. Many parasites have implications for public health (including *Cryptosporidium*) so the Department of Agriculture, Fisheries and Food (DAFF) supports ongoing research investigating their prevalence and significance.

In this regard, there is need for a national *Cryptosporidium* monitoring protocol and an opportunity has been identified to capitalise on the expertise within Irish academic institutions in this area. This proposed approach seeks to develop synergies between research groups and the public bodies with specific responsibilities in this area.

The EPA and DAFF are now inviting research proposals for work to initiate the development of a national *Cryptosporidium* monitoring protocol through the following tasks:

- Development of best practice guidance for stakeholders in relation to *Cryptosporidium* sampling and monitoring for normal and incident conditions
- Detailed Survey of all Irish public water supplies and group water schemes requesting information on the need for a National Service. A report on this survey should include a Cost Benefit Analysis of the monitoring options available (Nationally, Internationally) to National water suppliers.
- Development of new laboratory methods for *Cryptosporidium* and evaluation of current methodologies through participation in ring trial testing in conjunction with key international bodies including: National Reference Unit in Swansea, NPHS Microbiology, UK and Istituto Superiore di Sanità, Italy.
- Participating in R&D aimed at optimising sampling procedure for raw water, species identification using molecular biology techniques including real time PCR, PCR-RFLP, PCR and sequencing the amplicon.
- Evaluation of emerging contaminants (biological, chemical) in an Irish context via literature review and pilot testing for a Local Authority (to be identified) at BLC (and other contract laboratories as required). This element is intended to provide an

opportunity for more fundamental research in this area and will be elucidated by the applicants in research proposals.

This work would be complimented by an analytical work programme including:

- Pilot testing of water supplies on a representative number of water supplies on the EPA Remedial Action List (exact nature and scope of testing to be identified in cooperation with EPA)
- Differential diagnosis and confirmation of identified isolates of *Cryptosporidium*
- Typing of identified isolates to support outbreak/cluster investigations and for epidemiological surveillance
- Enumeration and viability studies using standard immunostaining procedures with fluorescent and/or differential interference contrast microscopy;
- Advice on the investigation, epidemiology, control and prevention of *Cryptosporidium* based on findings from the above.

Project Structure and Funding:

The project will be established through the EPA's Environmental Research Centre with personnel based at the DAFF laboratory complex at Backweston, Co Dublin. It is envisaged that this project will comprise a combination of research and analytical tasks and that the work will be jointly supervised by the Principal Investigator and representative(s) from EPA and DAFF.

It is anticipated that the research would be carried out at post-doctorate (or equivalent experience) level under the direction of a Principal Investigator. Researchers working on this project will be expected to have a primary degree in relevant discipline, e.g., microbiology and a higher degree in a related area.

Funding will be provided to support this project for a two year period with a total budget in the region of €300,000. This amount includes approximately €90,000 of in-kind contribution from DAFF through provision of consumables, workspace and related overheads. The remaining budget of approximately €210,000 is provided by EPA to cover salaries (including employers PRSI and pension contributions), travel & subsistence costs and an administration charge of 5% for the third-level institution over the two-year duration of the project.

Indicative Timeframe

An indicative timeframe for this call is shown below.

19 th October 2009	Announcement of funding opportunity via national newspapers, EPA website and College Research Offices & HEANET.
9 th November 2009	Deadline for submission of applications for funding.
December 2009	Evaluation & selection process completed; Applicants notified.
January 2010	Successful projects grant-awarded

Further Information

Current research projects being supported by the programme is available on the EPA web site (www.epa.ie). **For further information on this call, please contact: Dr Shane Colgan (s.colgan@epa.ie).**

Freedom of Information Act

Information supplied to the Environmental Protection Agency may be disclosed in response to a request under the Freedom of Information Act, 1997 and Freedom of Information (Amendment) Act, 2003. Should you wish that any of the information supplied by you in this application should not be disclosed because of its sensitivity, you should, when providing the

information, identify the same and specify the reasons for its sensitivity. The Environmental Protection Agency will consult with applicants about this information before making a decision on any Freedom of Information request received.

How to apply

Application Forms together with the *Budget Template, Terms and Conditions for support of Grant Awards* and *Guide for Applicants* are available on the EPA website (www.epa.ie)

Applications must be submitted to the EPA on or before 9th November 2009 not later than 5pm. Incomplete and/or late applications will not be considered.

Applications should include one paper copy (signed by the appropriate college authority) and an electronic copy on CD (MS Word / PDF format). The applicant must complete all sections of the form; additional information may be supplied as specified. Applications should be specific to one of the topics listed in this document.

Receipt of application will be confirmed by e-mail to the applicants after the submission deadline has passed.

Completed applications should **only** be sent to:

**ERC: Towards a *Cryptosporidium* Monitoring Protocol
STRIVE Programme
Environmental Protection Agency
Richview, Clonskeagh Road
Dublin 14**